

Name _____ Date _____ Period _____

Pre-Calculus Unit 2 Practice Test

1. Solve $4(x - 3)^2 + 5 = -25$ using the square root method.

2. Solve $8x^2 - 14x = 15$ by factoring.

3. Solve $x^2 - 6x + 4 = 0$ by completing the square.

4. Solve $2x^2 - 3x + 5$ using the quadratic formula.

5. Find the exact solution using any method $6x^2 + 2x + 3 = 1$.

6. What is the fundamental theorem of Algebra?

7. Use your calculator to find the approximate solutions to the equation $2x^4 - 3x^3 + 2 = 0$.

Are there any complex solutions to this equation (you don't need to find them if there are)? If so, how many? Explain how you know.

Solve the equations. You may use your calculator (to start), synthetic division, factoring, or the quadratic formula. Leave answers as exact answers in simplified form.

8. $x^4 - 4x^2 + 3 = 0$

9. $x^4 - 81 = 0$

10. $x^4 + 5x^3 + x^2 + 5x = 0$

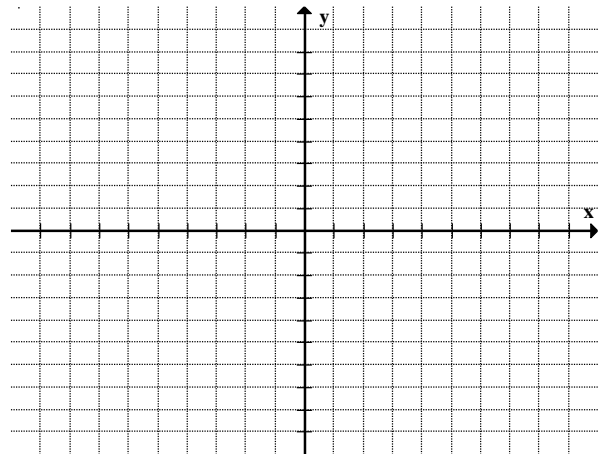
No Calculator Section

11. State the degree, number of possible real zeros, and turning points of the function. Then determine all of the real zeros by factoring.

$$f(x) = 2x^2 - 5x - 3$$

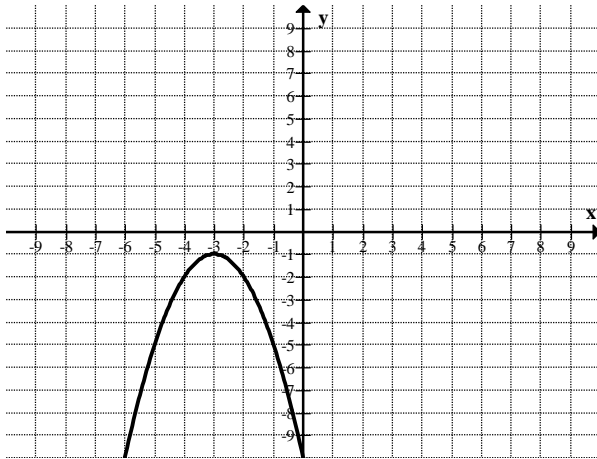
12. Write the function $f(x) = 3x^4 + 11x^2 - 4$ in completely factored form.

13. Sketch a complete graph of the function $f(x)$ in #11. List the coordinates of the y-intercept and zeros.

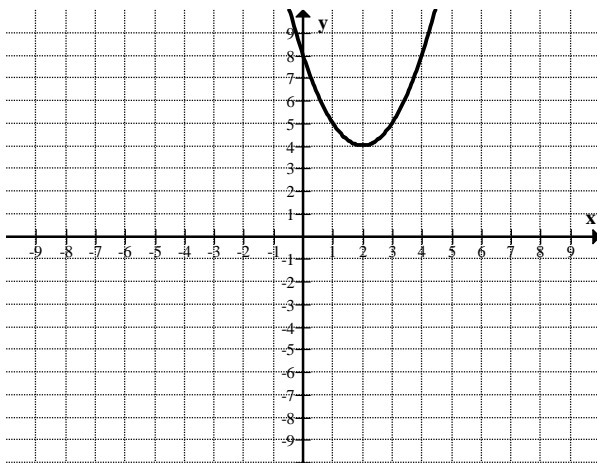


14. Solve the following inequality.
 $2x^2 + x - 10 < 5$

15. Write a function for the graph below in vertex form and standard form.



16. Write a function for the graph below in vertex form and standard form.



17. Write $f(x) = x^2 + 2x - 3$ in vertex form. Identify the vertex of $f(x)$, the max/min value, and the axis of symmetry.

18. Write $f(x) = -x^2 - x + 6.5$ in vertex form. Identify the vertex of $f(x)$, the max/min value, and the axis of symmetry.